DOCUMENT RESUME

ED 094 698 IR 000 879

AUTHOR	Rivoire, Helena
TITLE	Bucknell On-Line Circulation System; A Library Staff View.
INSTITUTION	Bucknell Univ., Lewisburg, Pa. Ellen Clarke Bertrand Library.
PUB DATE	12 Apr 73
NOTE	64p.; For related document see IR 000 878
EDRS PRICE	MF-$0.75 HC-$3.15 PLUS POSTAGE
DESCRIPTORS	Equipment Evaluation; *Library Automation; *Library Circulation; *Library Expenditures; Library Services; Library Technical Processes; *On Line Systems; *University Libraries
IDENTIFIERS	*Bucknell On Line Circulation System; Bucknell University

ABSTRACT

The Bucknell On-Line Circulation System (BLOCS) was designed to meet the requirements of a circulation system of the Ellen Clarke Bertrand Library of Bucknell University. The requirements for an automated system were, in sum: (1) a system whose operations were not only reliable but simple enough for student assistants (many of whom work only 10 hours a week to master in a short time; and (2) a system which, in addition to recording charges/discharges, would retain all the querying capabilities of the manual system. Essentially, BLOCS has been able to meet these requirements. The system consists of a transaction station (card reader, badge reader, strip printer) and a video display unit with keyboard for the input/output of information processed through the PDP-8/L mini-computer to the Sigma-7. A real-time monitor MTM/8, developed at Bucknell, the circulation software system (MARCCO (Master Real-Time Circulation Controller), and the input/output buffers occupy most of the 8K word core memory of the present system. Although it is still too soon to evaluate a system which has been in operation for less than two semesters, the vast improvements made during the second semester are encouraging. (WCM)

ED 094698

Bucknell On-line Circulation System

A Library Staff View

Helena Rivoire
Chief of Technical Services

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Ellen Clarke Bertrand Library
Bucknell University
Lewisburg, Pennsylvania
12 April 1973

IR 000 879

CONTENTS

Introduction 1

History. 2

System description 6

Hardware. 6

Functions 11

Reports 18

Costs. 35

Evaluation 41

INTRODUCTION

BLOCS (Bucknell On-Line Circulation System) was designed to meet the requirements of the circulation system of the Ellen Clarke Bertrand Library of Bucknell University. The Library serves a faculty of approximately 220 members, a resident student body of about 3,000, some 350 students and faculty of nearby institutions, and 900 residents of the area. At the end of June 1972 the number of cataloged volumes had reached 390,000 volumes (198,000 titles). The number of daily charges/discharges of books ranges from 400 to 1,000. The Library is open ninety hours a week. The rural location of the University and a resident study body were among the factors to be considered in the design of the new system. Because the students reside on campus, the Library is as heavily used during the evening hours as during the daytimes. However, staffing the evening hours with full-time library assistants is difficult because the only public transportation available is one taxi operating in daytime and early evening hours. Consequently, the Circulation Desk must be staffed evenings and weekends by a constantly changing array of students.

The requirements for an automated system were, in sum:

1) A system whose operations were not only reliable but simple enough for student assistants, many of whom work only 10 hours a week, to master in a short time.
2) A system which, in addition to recording charges/discharges, would retain all the querying capabilities of the manual system.

As the following pages will show, BLOCS has been able to meet these requirements.

HISTORY

BLOCS was brought out of the laboratory and put into operation at the Circulation Desk during the summer of 1972 on a trial basis intermittently for a few days at a time with adjustments and improvements being made in the non-operational intervals. While summer circulation, always low, did not provide a wide enough base for a thorough testing of the system, the summer runs did serve to familiarize the permanent circulation staff in the use of the system. In September 1972 one transaction station and one CRT were installed at the Circulation Desk. Student assistants were trained in the new techniques. BLOCS was finally ready for full-time operation. Until mid-October a parallel system of manual charging was also maintained as a security measure. However, it was soon apparent that the operation of two systems was exacerbating borrowers and increasing the workload of the Circulation assistants beyond capacity. The efforts of maintaining two systems became not only inefficient but unreliable. Errors began creeping into both systems. For these reasons, although many improvements were still needed on the automated system, the decision was made to abandon the manual system after the first six weeks of operation of the automated system. The decision to abandon the old system, to cross the Rubicon as it were, was no sooner made than the Sigma began to experience a number of serious crashes with longer down-time than ever before in the history of its operation. The Library minicomputer, serving as back-up, performed well. However, the PDP-8/L had been planned as back-up for short periods of down-time. While it was capable of recording the charges for even long

periods of time, the lack of querying capability seriously hampered circulation service. While discharges could have been recorded off-line on the PDP-8/L, books with Holds would not have been noted at the time of discharge. Therefore, discharges were held until such time as the Sigma was in operation. To add to the difficulties, there was even some loss of data due to a malfunctioning cassette in the back-up system. Steps have since been taken to prevent a recurrence of such a loss.

At the time of the Sigma failures, a period of peak circulation, the discharge of overdue books was not only a time-consuming task but also the cause of a queuing problem at the CRT. All books, on their return, had to be segregated into overdues and non-overdues. The non-overdues were discharged quickly, but the overdues had to go through a querying process on the CRT in order to establish the name of the borrower for the levying of a service charge. As a result of this roundabout procedure the discharge of books moved too slowly. At the same time books were also being returned still charged on the manual system whose three-step discharge process added its share to the growing slag heap of unsorted, undischarged books in the circulation area. By mid-November difficulties seemed to arise on all sides. In addition to the unfortunate Sigma failures (happily not repeated since in any magnitude) a disaster no less great stemmed from the fact that the I.D. cards for the entire sophomore class had been mispunched and had to be reordered from the supplier 60 miles distant. In order to charge books to a sophomore, the circulation attendant was required to key in the CRT both the student I.D. number and the call number of the book to be charged. Errors in

keying call numbers (I.D. numbers are checked by the computer against a Parton File for validity, but call numbers are accepted as keyed in) led to difficulties in the discharge process later as well as increasing search times for overdue books which proved to have non-existent call numbers.

The card reader in the transaction station began to misread cards. Many charges required two tries at the station, then, if unsuccessful, a key-in on the CRT. It was at this point that an exhausted circulation staff considered a retreat back across the Rubicon into Gaul and a return to earlier ways. However, after close consultation with the Computer Center staff, who were as determined as the Library staff to make the system work, the weary librarians decided to continue with the automated system at least until the end of the semester when a more complete evaluation could be made.

The month of January, an interim period of low enrollment, enabled the Circulation Department to clean up the residue of dual charges and also to improve the physical layout of the department in a fashion more suited to the use of the automated system.

With the start of the February semester the whole situation has vastly improved. The routine for the discharge of books has been simplified. Books can now be discharged without regard to date. All information on overdue discharges is recorded automatically and appears as part of the daily journal print-out. The card reader malfunction has been corrected. There are very few mis-punched I.D. badges. Reserved Book Room charges have been read into the system as well as charges for books in storage, and

inventory missing items. A start has been made on the transfer of long-standing faculty charges from the manual system to the automated system. The addition of these charges to the machine-readable data base has greatly enhanced its querying capability and at the same time has removed the bulky manual files from the work area.

SYSTEM DESCRIPTION

HARDWARE

As the scope of this report is non-technical, only a summary description of the hardware/software components of BLOCS will be given. For a more detailed account of the technical description of BLOCS the report cited below may be consulted.[1] Essentially the system consists of a transaction station (card reader, badge reader, strip printer) and a video display unit with keyboard for the input/output of information processed through the PDP-8/L mini-computer to the Sigma-7. The PDP-8/L, located in the Library, includes in its system:

1) 8,192 (12 bit) words of core memory
2) Power-fail/automatic restart
3) 60Hz real-time clock
4) ASR-33 console teletypewriter
5) Multi-channel communications controller (DC02), 4 external channels with modems
6) DF-32 fixed-head disc controller with 2 32K word disc units
7) Sykes Datatronics Compu/Corder model 100 digital magnetic tape cassette recorder

A real-time monitor MTM/8, developed at Bucknell, the circulation software system MARCCO (Master Real-time Circulation

---

1. Smith, Michael J. BLOCS - a unique multi-dimensional approach to on-line circulation. Anaheim, Calif., FJCC Seminar on Computers in Information Centers, 1972.

Controller) and the input/output buffers occupy most of the 8K word core memory of the present system.

Transaction station

The transaction station was designed and constructed by the Freas-Rooke Computer Center and the Department of Electrical Engineering. The principal units consist of an 80-column tab reader, a 10-column badge reader, a date-due strip printer and 15 rather large, highly legible illuminated buttons for the change of loan periods and for the activation of the various commands, Charge, Discharge, or Nullify. The station is mounted in the central counter of the Circulation Department. A panel with slots for the book card and I. D. badge, the operation buttons and the strip printer lies flush with the counter top.

The normal loan period for a book is set when it first enters the circulation system data base. For most transactions the button for NORMAL period is left depressed. A charge for a 7-day book with the NORMAL button depressed will produce a date-due strip with the date-due seven days hence. In like manner a charge for a 2-hour book or a 3-week book will each produce a strip with the proper date-due when the NORMAL button is depressed. The other loan period buttons are used for the most part to override a normal period. A volume can be given a different normal loan period by nullifying or withdrawing it from the data base and reentering the volume into the data base with a new normal period.

Book Card

The book card is an 80-column tab card with the call number, author and title, truncated at the 80th column if necessary. Volume number and copy number are separated from the base call number by a space and # so that the base call number can be used for a query on the status of all volumes or copies when desired. The configuration on the card is: #class no. (space) Cutter number (space) #volume or copy number (three spaces) author (three spaces) title, ex:

#Z699.4 .S2S3 SALTON, G S M A R T RETRIEVAL SYSTEM

The book card is computer produced as part of the cataloging process.

I.D. Badges

A 10-column plastic badge embossed with borrower's name and Social Security Number in addition to the punched Social Security number and a single digit status code is issued to all borrowers. The Registrar's Office issues the student cards, valid until the student leaves school; the Payroll Office issues faculty and staff cards; the Library issues cards for special library borrowers. A few cards with special serial numbers prepunched are available for immediate VIP use. While the cards do not contain an expiration date, an I.D. number can be made invalid whenever desired by the removal of the number from the Patron File which the computer checks for every charge transaction.

Status codes:

1 Bucknell undergraduate
2 Bucknell graduate student
3 Bucknell faculty
4 Bucknell staff other than faculty
5 Students of other colleges
6 Faculty of other colleges
7 Not yet used
8 Local residents

Strip Printer

The Facit strip printer, mounted in the panel of the transaction station, ejects a 7" x 1 1/2" paper strip with call number, I.D. number of borrower and date due for each charge or renew transaction.

**VOL: Z699.4 .S253 ** ID: 999999999 ** DUE: 28 FEB 73 2400

In addition, for every volume discharged which has a HOLD on it, a strip with the following message is generated:

HOLD VOL: RC480 .E98********FOR SMITH JOHN

Cathode Ray Tube

A CRT (video display unit with a keyboard) placed near the transaction station displays each transaction as it occurs, including appropriate messages when necessary. The CRT keyboard, while used primarily to initiate queries on the status of a book, can also be used to key in charges, discharges, holds, renewals in the event a borrower has forgotten his I.D. or a book card is missing.

KEEP THIS CARD IN THIS POCKET

YOU ARE CHARGED WITH THIS MATERIAL UNTIL THIS CARD AND MATERIAL ARE RETURNED. FINE CHARGED FOR MUTILATION OR LOSS OF THIS CARD.

The Ellen Clarke Bertrand Library

Bucknell University
Lewisburg
Pennsylvania

CIRCULATION BOOK CARD

QH651 .G45 .V7 GIESE: A C PHOTOPHYSIOLOGY

BOOK CARD

** VOL: KF224 .S264 ** ID: 16040637? ** DUE: 28 MAR 73 2400

DATE DUE STRIP

BEST COPY AVAILABLE

FUNCTIONS

Charge

For a normal charge operation the circulation attendant inserts the borrower's I.D. card and the book's eighty-column tab card into the proper slots of the transaction station, alters the loan period if necessary and depresses the START button. If the transaction is valid, the cards are ejected, and a 7" x 1 1/2" date-due slip containing call number, borrower I.D., and date due is printed by the strip printer. The circulation attendant puts the book card and date-due slip into the pocket of the book and returns book and I.D. card to borrower.

If, for some reason, the book card is missing, or if the borrower has forgotten his I.D. card, the transaction may be keyed in directly at the CRT. Just as in the normal charge operation, a date-due slip is produced by the strip printer.

Invalid transactions occur under the following circumatances:

1) Borrower I.D. number not found in the Master Patron File. Borrower may be using an expired I.D. card or the card may have been incorrectly punched. When a number is not found in the Patron File, a signal light with the message SEE CRT is illuminated at the transaction station and the following message is visible on the CRT screen:

   ** INVALID ID: 123456789

2) Book may already be charged out or may have a hold on it. In that case, as above, the SEE CRT button is illuminated at the transaction station and the message appears on the screen:

   ** VOL ALREADY ACTIVE. NO ACTION POSSIBLE.

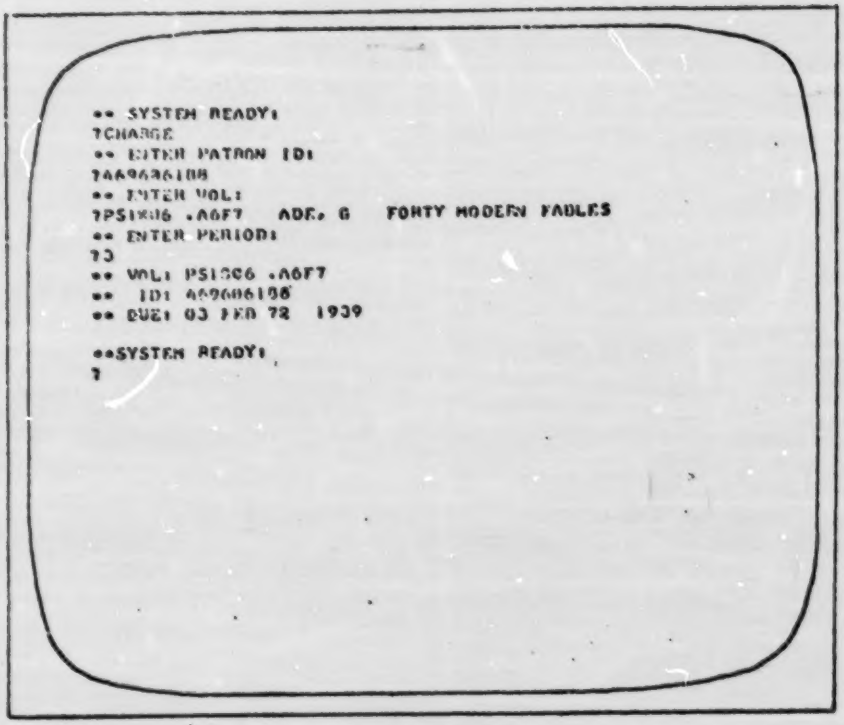
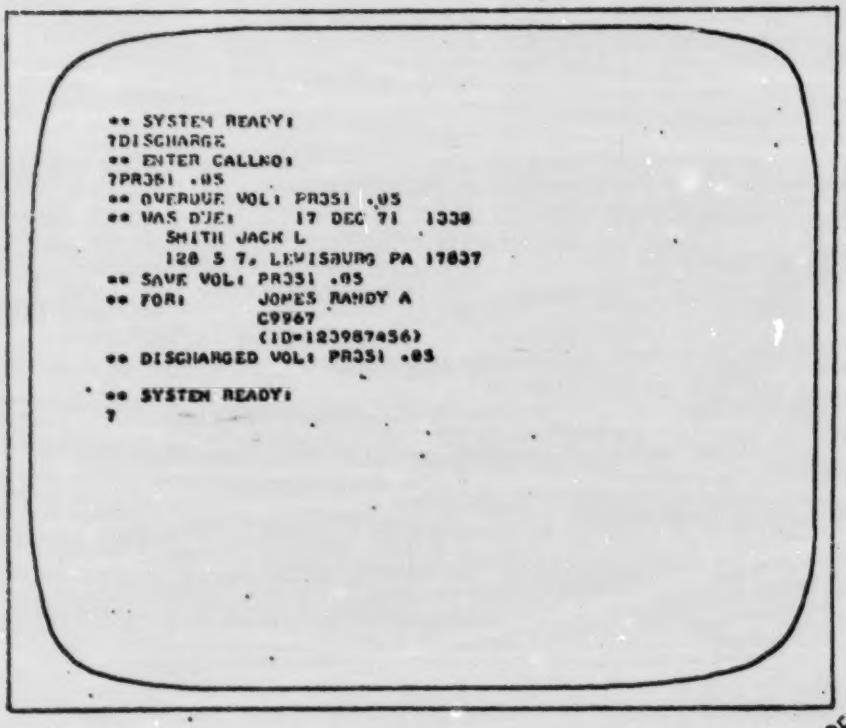


Figure 3: Charge Display

Discharge Display



BEST COPY AVAILABLE

Discharge

In order to discharge a book the attendant inserts the 80-column card into the proper slot on the transaction station, checks to see that the DISCHARGE button is set, then depresses the START button. If the discharge has been effected normally, the book card is ejected, the green READY light flashes on the transaction station while a record of the transaction appears on the CRT screen. The attendant then throws away the date-due slip returned with the book, and replaces the book card in the book pocket.

If other than normal conditions occur, the red SEE CRT button on the transaction station is illuminated and one of the following messages appears on the CRT:

1) VOL ALREADY DISCHARGED. From time to time patrons return books used in the library but never charged out.

2) VOL ON HOLD, with display of name, address and I.D. number of patron with first hold. At the same time the strip printer produces a slip with the message:
** HOLD VOL: RC480 .E98**********FOR SMITH JOHN

3) NOTA BENE: 7-DAY LOAN PERIOD. The return of 7-day books is noted so that they may be returned directly to the New Book section on display in the lobby of the Library.

Should the transaction station be inoperable or the book card missing, the attendant may discharge the volume by keying in the call number at the CRT keyboard. This method is rarely used because it is so much more time-consuming than the normal method. As a general practice books are not discharged when either the Sigma-7 is down or when the transaction station is inoperable.

Renew

Renewals can be effected in two ways:

1) If the patron has the book in hand, the 80-column book card and a special renewal badge are inserted into slots in the transaction station, CHARGE button and loan period set, and START button depressed. If the volume has no HOLD on it, a normal charge operation occurs with a new date-due slip printed by the strip printer.

2) If the patron does not present the book but asks for a renewal by call number only, a query on call number is initiated on the CRT and the RENEW command indicated. A new date-due slip is generated and given to the borrower if he is present. In the case of a telephone renewal the date-due slip is simply thrown away.

In either case if the volume has a HOLD on it, the following message appears on the CRT:**VOL ALREADY ACTIVE. NO ACTION POSSIBLE

Hold

A HOLD is placed on a volume by the use of the query function as illustrated in the example on the following page. While as many as five HOLDS may be placed on a volume, in practice administrative action is taken when the level of HOLDS exceeds three. An appendix to the weekly list of books in circulation provides the information in a readily usable form.

At the time of discharge, the strip printer ejects a strip alerting the attendant to the fact that the volume has a HOLD.

** HOLD VOL: RC480 .E98 **********FOR SMITH JOHN

The slip is placed in the book and the book shelved on the Hold Shelf.

Both the placing of a HOLD and the discharge of a volume with a HOLD cause a record to appear in special listings of the daily journal. The listing of holds placed is used as a basis for the

```
** SYSTEM READY:
?QUERY
** QUERY ON PATRON OR VOL:
?VOL
** ENTER CALLNO:
?PS1006 .A6F7

     PS1006 .A6F7
     ADE, G
     FORTY MODERN FABLES
     ** DUE: 05 FEB 72  2400
     ** PER: 3  (24 HR)
     ** NON: CIRC

** CHARGED TO:

     LYONS BRUCE G
     C1345
     STATUS: GRAD


** ENTER RENEW, DISCHARGE, HOLD, OR EXIT:
?HOLD
** ENTER PATRON ID:
?167356942
** VOL: PS1006 .A6F7
** PLACED ON HOLD FOR: 167356942  --  SMITH JACK L
```

Figure 6: Query-Hold Display

```
** SYSTEM READY:
?QUERY
** QUERY ON PATRON OR VOL:
?VOL
** ENTER CALLNO:
?PS1006 .A6F7

     PS1006 .A6F7
     ADE, G
     FORTY MODERN FABLES
     ** DUE: 03 FEB 72  1939
     ** PER: 3  (24 HR)
     ** NON: CIRC

** CHARGED TO:

     LYONS BRUCE G
     C1345
     STATUS: GRAD


** ENTER RENEW, DISCHARGE, HOLD, OR EXIT:
?RENEW
** VOL LENT TO: LYONS BRUCE G
** DO YOU WISH NORMAL LOAN PERIOD
?NO
** ENTER PERIOD:
?5
** VOL: PS1006 .A6F7
**  ID: 469606188
** DUE: 05 FEB 72  2400
```

Figure 7: Query-Renew Display

BEST COPY AVAILABLE

```
** SYSTEM READY:
?QUERY
** QUERY ON PATRON OR VOL:
?VOL
** ENTER CALLNO:
?PS3025 .C4 1981

     PS3025 .C4 1981
     JONES, H J
     LIVES AND WRITES
     ** DUE: 29 DEC 71  2400
     ** PER: 7  (3 WK)
     ** NOW: CIRC
     ** NOL:  732876285

** CHARGED TO:

     SMITH JACK L
     128 S 7, LEWISBURG PA 17837
     STATUS: FAC

** ENTER RENEW, DISCHARGE, HOLD, OR EXIT:
?RENEW
 CANNOT RENEW. VOL ON HOLD.
```

Figure 8: Query-Renewal Rejection Display

BEST COPY AVAILABLE

```
** SYSTEM READY:
?QUERY
** QUERY ON PATRON OR VOL:
?PATRON
** ENTER PATRON ID:
?469606188
     LYONS BRUCE G
     C1345
     STATUS: GRAD
** DISPLAY CHARGED VOLS
?

     PS1086 .A6F7
     ADE, G
     FORTY MODERN FABLES
     ** DUE: 05 FEB 72  2400
     ** PER: 3  (24 HR)
     ** NOW: CIRC

** DISPLAY NEXT VOL.
?

     HX36 .L4 C4
     LENIN, V I
     STATE AND REVOLUTION
     ** DUE: 22 FEB 72  2400
     ** PER: 7  (3 WK)
     ** NOW: CIRC

** DISPLAY NEXT VOL.
?
**  2 VOLS DISPLAYED.
```

Figure 9: Query-on-Patron Display

recall of books; the listing of books returned with holds is used for the notification to borrowers of books being held.

Query

A query to ascertain the status of a given volume can be made in two ways - either by author/title or by call number. If information is sought by author/title the command FIND or F is keyed in followed on the appropriate lines by the first three characters of the author and the first three characters of the title with the exclusion of initial articles in any language. In a search for a title main entry a dash is keyed on the author line.

For a query by call number the command QURRY or Q is keyed in. To the CRT response of PATRON OR VOL the command V is keyed in followed on the next line by the call number desired. If a query is desired on all copies or volumes of a base call number, the command ALL is specified.

To obtain a listing of volumes charged to a particular borrower the command Q is keyed in followed on the next line by P and the borrower's I.D. number on the line following.

Withdraw or Nullify

In order to remove a volume completely from the data base the 80-column book card and a special Nullify badge are inserted in the proper slots in the transaction station, the NULLIFY button set and the START button depressed. If no book card is available, the nullify code number and call number of the book may be keyed in at the CRT.

REPORTS

Journal - received daily and composed of the following parts:

1) Transaction listing - a list of transactions in the order of their occurrence.

2) Daily statistics
   a) by borrower category
   b) by general classification number
   c) by function (charge, discharge, etc.)
   d) by loan period.

3) List of overdue books returned indicating time of return, status and I.D. number of borrower, date-due, and name of borrower.

4) List of books returned which have Holds on them and indicating call number, author and title of book returned as well as name and address of borrower with the first Hold.

5) List of books to be recalled because Holds have been placed, indicating call number, author and title of book, and name and address of borrower from whom book is to be recalled.

Chain Hopper - produced five times a week

While the main purpose of the program is the testing of the linkage in the data base between the Patron File and the Volumes in Circulation File, the resulting print-out lists the number of books in circulation charged to individual borrowers. These figures form an interesting picture of library use.

Overdue Notices - weekly

A notice for every overdue book is printed separately on a 3 x 5 card with author, title, and call number of book. The card is addressed and ready for mailing. Since all students have campus mail boxes, no postage is required for overdue notices to students. Multiple notices for a special borrower with an off-campus address are combined in one window envelope in order to save postage.

Overdue Listings - Weekly

A list in alphabetical order by name of borrower and including his I.D. number, status, call number of overdue book, date due, and type of notice (1st, 2d or final). Appended to the list is an analysis by general classification number of books in circulation by category of borrower as well as a statistical analysis of the overdue books.

Books in Circulation - weekly

A listing in call number order of all books in circulation. In addition to call number, author, title, date due, presence or absence of a Hold, and status of borrower are also indicated. The listing serves a general back-up in case of total computer failure. It is not used by the public, but is occasionally used by the staff in tracing the history of an overdue book or as a quick query if the CRT is in use. Appended to the list is a recapitulation of all books with Holds, which serves as an indicator for the purchase of additional copies or possible action such as a more peremptory recall from a recalcitrant borrower.

Patron File

The I.D. numbers of valid borrowers, available on-line in the Sigma, are checked for every charge, renewal and hold transaction. In addition, a print-out is kept at the Circulation Desk for ready reference. The name of the borrower, status, I.D. number, and mailing address are all indicated. The listing is organized in two sections - the first arranged alphabetically by borrower and the second arranged by I.D. number.

Faculty Charges

Lists of titles charged to faculty members are produced annually, or oftener, as desired. The lists are arranged in the order of charging, with the most recent charges first.

```
C 7 1444 1-2267+5722 RM319 .D47
C 7 1441 1-1334446366 MM291 .S59
C 7 1441 1-1334446366 MM291 .M355
C 7 1443 1-2865C7121 LB1053.5 .N71
C 7 1443 3-1757761215 GV995 .F3
C   1445
C   1447
C   1448
C   1453
C 7 1455 1-1284C55630 DT154 .S9F375
C 7 1455 1-1813877237 PQ1825 .E5G7
C 7 1456 8-1953255452 TA342 .H78
C 7 1459 8-1493882728 YA23 .N53A
C 7 1460 8-1493882728 YA23 .S9135
C 7 1460 8-1493882728 YA23 .G73ST
C 7 1460 8-1493882728 YA23 .D2755W
C 7 1461 8-1493882728 F209 .D95
C 7 1461 8-1783761716 RC681 .D14
C 7 1461 8-1783761716 F159 .D288
C 7 1462 8-1783761716 F157 .C783
C 7 1462 8-1874871477 D769 .U47
C 7 1466 1-1823888243 E163.8 .V507
C 7 1466 1-1823888243 DS557 .A67L28
C 7 1467 1-1823888243 DS557 .A6F7
C 6 1467 1-1823888243 DS557 .A6F53
C 7 1468 8-1983866536 E666 .87
C 7 1468 8-1983866536 E668 .D853
C 7 1469 8-0842445355 D511 .B28 1968
C 7 1469 8-0842445355 D521 .F19
C 7 1469 8-0842445355 D511 .L47
R 7 1470 1-1384612869 PR6019 .O98D9 1926
C 7 1472 8-1783761716 F146 .P23
C   1471
C 7 1473 1-1385092:4 QA301 .D73
C   1475
D   1476          TX715 .D67
D   1477          PR1502 .C13
D   1477          PR1786 .A1 1966
D   1477          P92 .U5H8
D   1478          PR1786 .A1 1969
D   1478          HD31 .G35
D   1479          HD69 .P782
```

Column 1 Function (Renew, Query, Charge Discharge, Nullify)
Column 3 Loan Period
7 = 3 weeks
6 = 1 week
Column 5-8 Time of transaction
Column 10 Status of borrower
Column 12-20 Borrower I.D. number
Column 22-49 Call number
Column 50- Copy no., vol., location

V1
JUV COLL
JUV COLL
JUV COLL
JUV COLL
C2
V26
C2
V31 1920

DAILY JOURNAL

BEST COPY AVAILABLE

***** 09 SEP 73 *****

**** DAILY SUMMARY OF AUTOMATED CIRCULATION STATISTICS ****

BORROWER CATEGORY	VOLUMES CHARGED
UNGR	89
GRAD	7
FAC	11
CLER	0
*STU	3
*FAC	0
VIP	0
MISC	11
DEPT	0
ERR	0
TOTAL	123

TYPE OF CHARGE		
AUTOMATIC	:	100
SEMI-AUTOMATIC	:	16
COMPLETE KEYIN	:	7
TOTAL	:	123

BEST COPY AVAILABLE

***** 09 SEP 73 *****

**** DAILY SUMMARY OF AUTOMATED CIRCULATION STATISTICS ****

BEST COPY AVAILABLE

BREAKDOWN OF CHARGES BY CALL NUMBER

		TODAY	CUMULATIVE TOTALS FOR THIS WEEK	THIS MONTH	THIS YEAR
GENERAL WORKS	A	0	0	1	6
PHILOSOPHY	B-BD	3	3	21	111
PSYCHOLOGY	BF	10	10	22	184
ESTHETICS	BH	0	0	0	0
ETHICS	BJ	0	0	2	14
RELIGION	BL-BX	2	2	12	186
HISTORY, GENERAL AND OLD WORLD	C-D	4	4	27	293
HISTORY, NEW WORLD	E-F	10	10	28	191
GEOGRAPHY	G-GF	0	0	1	12
ANTHROPOLOGY & FOLKLORE	GN-GT	0	0	3	42
PHYSICAL EDUCATION	GV	0	0	5	13
SOCIAL SCIENCES	H	0	0	0	0
STATISTICS	HA	0	0	1	13
BUSINESS & ECONOMICS	HB-HJ	1	1	36	231
SOCIOLOGY	HM-HV	12	12	38	258
POLITICAL SCIENCE	HX-J	9	9	20	87
LAW	K	0	0	0	13
EDUCATION	L	3	3	14	203
MUSIC	M	0	0	12	140
ARTS & FINE ARTS	N	5	5	22	225
LINGUISTICS	P	0	0	1	22
CLASSICS	PA	1	1	19	110
LANGUAGES, MODERN EUROPEAN	PB-PF, PH	0	0	0	0
RUSSIAN & SLAVIC LANGUAGE & LITERATURE	PG	1	1	7	52
JAPANESE & NON-EUROPEAN LANGUAGES & LITERATURE	PJ-PM	0	0	3	42
LITERATURE (GENERAL), DRAMA, MOTION PICTURES, SPEECH	PN	2	2	11	218
FRENCH LITERATURE	PQ-PQ3999	8	8	18	81
ITALIAN LITERATURE	PQ4001-PQ5991	0	0	0	6
SPANISH & PORTUGUESE LITERATURE	PQ6001-	9	9	19	48
ENGLISH LITERATURE	PR	10	10	36	391
AMERICAN LITERATURE	PS	11	11	48	512
GERMAN & GERMANIC LITERATURE	PT	4	4	32	130
FICTION	PZ	0	0	0	5
SCIENCE (GENERAL)	Q	0	0	5	16
MATHEMATICS	QA	3	3	11	132
ASTRONOMY	QB	0	0	0	2
PHYSICS	QC	0	0	5	42
CHEMISTRY	QD	2	2	11	74

GEOLOGY	QE	0	0	2	14
BIOLOGY	QH	0	0	2	64
BOTANY	QK	4	4	5	52
ZOOLOGY	QL	0	0	4	81
ANATOMY	QM	0	0	0	0
PHYSIOLOGY	QP	0	0	9	47
BACTERIOLOGY	QR	0	0	2	13
MEDICINE	R	1	1	10	146
AGRICULTURE	S-SF	0	0	11	48
FISHERIES	SH	0	0	0	2
OUTDOOR LIFE	SK	0	0	0	10
ENGINEERING & TECHNOLOGY	T	4	4	29	225
MILITARY SCIENCE	U	0	0	1	12
NAVAL SCIENCE	V	0	0	0	2
JUVENILE	Y	3	3	19	84
BIBLIOGRAPHY & INFORMATION SCIENCES	Z	0	0	3	40
NEW BOOK SHELF	NBS	0	0	21	236
PAPERBACK BOOKS	PPS	1	1	31	341
RUSH BOOKS	RSH	0	0	0	19
MISCELLANEOUS		0	0	1	35

BEST COPY AVAILABLE

***** 09 SEP 73 *****

**** DAILY SUMMARY OF AUTOMATED CIRCULATION STATISTICS ****

123 CHARGES (INCLUDING INTRALIBRARY : 123)
54 DISCHARGES
0 NULLIFIES
2 RENEWALS
1 HOLDS
21 QUERIES
1 DB OPENINGS
0 OTHERS

TOTALS TO DATE :	CHARGES	DISCHARGES	NULLIFIES	RENEWALS	HOLDS	QUERIES
THIS WEEK :	123	54	0	2	1	21
THIS MONTH :	644	676	7	43	17	262
THIS YEAR :	5585	6476	1212	630	78	2338

BEST COPY AVAILABLE

***** 09 SEP 73 *****

**** DAILY SUMMARY OF AUTOMATED CIRCULATION STATISTICS ****

				VOLUMES CHARGED TO PATRONS FOR THIS			
	LOAN PERIOD	TOTAL	INTRALIBRARY	DAY	WEEK	MONTH	YEAR
1 = 1-hour	1	0	0	0	0	0	10
2 = 2-hour	2	0	0	0	0	0	3
3 = 24-hour	3	0	0	0	0	1	7
4 = 48-hour	4	0	0	0	0	0	5
5 = 3-day	5	0	0	0	0	0	3
6 = 7-day	6	6	0	6	6	69	698
7 = 3-week	7	117	0	117	117	573	4847
8 = 4-week	8	0	0	0	0	1	12
	9	0	0	0	0	0	0
	ERR	0	0	0	0	0	0
	TOTALS:	123	0	123	123	644	5535

(INTERLIBRARY LOANS: 0)

BEST COPY AVAILABLE

LISTING OF OVERDUE BOOKS DISCHARGED THIS DAY

D	0854	1-017381853	ML160.B784M9		*** 10 MAR 73 2400
D	0931	1-148384123	PS568 .0855B7		*** 05 MAR 73 2400
D	1000	1-175401398	PS3515 .E3716 1930	C2	*** 05 MAR 73 2400
D	1014	1-156465309	PR 1266 .W7		*** 05 MAR 73 2400
D	1055	6-187057761	DG1271 .R6		*** 09 MAR 73 2400
D	1055	8-290104584	CS439 .6547 1971		*** 10 MAR 73 2400
D	1228	8-160424072	PQ8097 .N4A6 1969		*** 27 FEB 73 2400
D	1229	8-173489569	JX1975 .M445	V2	*** 11 MAR 73 2400
D	1229	5-148426002	HM22 .U6B5	C2	*** 11 MAR 73 2400
D	1230	8-195464542	HV6789 .C77		*** 12 MAR 73 2400
D	1230	8-195464542	HV8073 .T52 1965		*** 12 MAR 73 2400
D	1230	8-999999444	PN2065 .S786 1948		*** 06 MAR 73 2400
D	1231	8-184205890	2F1051 .C6		*** 08 MAR 73 2400
D	1232	1-202462576	B-1853 .P6 1955		*** 28 FEB 73 2400
D	1232	8-195464649	BF1576 .S79		*** 06 MAR 73 2400
D	1232	5-149463160	QE365 .D16 1949		*** 11 MAR 73 2400
D	1233	1-148505958	PR3069 .L6V91 1961A		*** 08 MAR 73 2400
D	1233	8-173489569	D643 .A7D3		*** 08 MAR 73 2400
D	1233	5-188443159	DK274 .H35 1970		*** 05 MAR 73 2400
D	1233	8-173489569	D644 .T18		*** 08 MAR 73 2400
D	1234	8-173489569	D647 .T26	V3	*** 11 MAR 73 2400
D	1255	5-262981802	QC449 .56		*** 05 MAR 73 2400
D	1300	1-055404562	B3279 .H49R5		*** 09 MAR 73 2400
D	1311	1-055404562	BD241 .P35		*** 06 MAR 73 2400
D	1327	1-032404779	HV6025 .S83 1966		*** 11 MAR 73 2400
D	1350	8-149429517	N611 .C641		*** 11 MAR 73 2400
D	1353	5-206386685	LB1561 .C2A4		*** 22 FEB 73 2400
D	1422	8-999999439	HN13 .M32		*** 24 JAN 73 2400
D	1425	8-999999439	HM258 .D31		*** 24 JAN 73 2400
D	1430	8-999999439	HM251 .T95		*** 24 JAN 73 2400
D	1532	1-154386117	TP986 .A2547 1963		*** 08 MAR 73 2400
D	1533	8-198385138	N6888 .E7A25		*** 07 MAR 73 2400
D	1553	1-163380609	BX830 .K47 1962		*** 02 JAN 73 2400
D	1554	1-163380609	BX995.2 .M33		*** 27 DEC 72 2400
D	1600	1-137400538	PS1449 .C81Z62		*** 25 DEC 72 2400
D	1607	1-163388852	PR6073 .I467805		*** 10 JAN 73 2400

BORROWER'S NAME
(deleted in sample copy)

BEST COPY AVAILABLE

BOOKS NOW AVAILABLE (RETURNED) WHICH WERE ON HOLD

**** NOTIFY: SMITH JOHN ** ADDRESS: BOX C2672
**** THIS VOL HAS BEEN RETURNED AND IS NOW AVAILABLE FOR HIM:
RJ486 .W37 WENDER, P H MINIMAL BRAIN DYSFUN

**** NOTIFY: DOE JANE ** ADDRESS: BOX C3006
**** THIS VOL HAS BEEN RETURNED AND IS NOW AVAILABLE FOR HIM:
BF891 .R18 1961 RAND, H A GRAPHOLOGY

**** NOTIFY: ROE RICHARD ** ADDRESS: 30 S FRONT ST, LEWISBURG PA 17837
**** THIS VOL HAS BEEN RETURNED AND IS NOW AVAILABLE FOR HIM:
HQ728 .O55 O'NEILL, N OPEN MARRIAGE

**** NOTIFY: *** RESERVE BOOK ** ADDRESS: (RESERVE BOOK ROOM OF BERTRAND LIBRARY)
**** THIS VOL HAS BEEN RETURNED AND IS NOW AVAILABLE FOR HIM:
KF8745 .C325H35

BEST COPY AVAILABLE

BOOKS WHICH SHOULD NOW BE RECALLED

***** RECALL FROM: BROWN JOHN ** ADDRESS: BOX C0095
***** THE FOLLOWING VOL WHICH HAS JUST BEEN PLACED ON HOLD:
KF8745 .C325H35

* 5520	PATR: ZIMMERMAN WILLIAM H	ID:	PATREF:	457729	BKCNT:	0	0
* 5521	PATR: ZINK JR GEORGE END	ID:	PATREF:	74628	BKCNT:	0	0
* 5522	PATR: ZISKA SUZANNE EILEEN	ID:	PATREF:	354050	BKCNT:	0	0
* 5523	PATR: ZONNEVELD-DIEDERIK W	ID:	PATREF:	436228	BKCNT:	0	0
* 5524	PATR: ZUCCO JOHN WARNER	ID:	PATREF:	389633	BKCNT:	0	0
* 5525	PATR: ZUCH AUDREY T	ID:	PATREF:	98180	BKCNT:	0	0
* 5526	PATR: ZUCH ROBERT L	ID:	PATREF:	416898	BKCNT:	0	0
* 5527	PATR: ZULLI LOIS R	ID:	PATREF:	82052	BKCNT:	0	0
* 5528	PATR: ZWICK DIANE MARIE	ID:	PATREF:	182146	BKCNT:	1	1
* 5529	PATR: ZYLA MICHAEL MARTIN	ID:	PATREF:	212097	BKCNT:	0	0
* 5530	PATR: *** ALUMNI SHELF	ID:	PATREF:	242819	BKCNT:	0	0
* 5531	PATR: *** BINDERY	ID:	PATREF:	365698	BKCNT:	16	16
* 5532	PATR: *** CATALOGUE DEPT	ID:	PATREF:	529539	BKCNT:	225	225
* 5533	PATR: *** CHEM LAB	ID:	PATREF:	218245	BKCNT:	10	10
* 5534	PATR: *** EXHIBITS	ID:	PATREF:	259201	BKCNT:	13	13
* 5535	PATR: *** INTERLIB LOAN	ID:	PATREF:	201858	BKCNT:	23	23
* 5536	PATR: *** INVENTORY MISSING	ID:	PATREF:	136321	BKCNT:	938	938
* 5537	PATR: *** LIBRARY TEMP LOAN	ID:	PATREF:	488578	BKCNT:	42	42
* 5538	PATR: *** NEW BOOK SHELF	ID:	PATREF:	504961	BKCNT:	334	334
* 5539	PATR: *** PROCESSING	ID:	PATREF:	382083	BKCNT:	4	4
* 5540	PATR: *** REFERENCE DEPT	ID:	PATREF:	447617	BKCNT:	0	0
* 5541	PATR: *** RESERVE BOOK	ID:	PATREF:	611459	BKCNT:	1636	1636
* 5542	PATR: *** SEARCH	ID:	PATREF:	152705	BKCNT:	5	5
* 5543	PATR: *** SPEC COLL	ID:	PATREF:	283779	BKCNT:	0	0
* 5544	PATR: *** STORAGE	ID:	PATREF:	324739	BKCNT:	2147	2147
* 5545	PATR: *01	ID:	PATREF:	328963	BKCNT:	0	0
* 5546	PATR: *10	ID:	PATREF:	255234	BKCNT:	0	0
* 5547	PATR: *100	ID:	PATREF:	450437	BKCNT:	0	0
* 5548	PATR: *11	ID:	PATREF:	247043	BKCNT:	0	0
* 5549	PATR: *12	ID:	PATREF:	238850	BKCNT:	0	0
* 5550	PATR: *13	ID:	PATREF:	522756	BKCNT:	0	0
* 5551	PATR: *14	ID:	PATREF:	514563	BKCNT:	0	0
* 5552	PATR: *15	ID:	PATREF:	506370	BKCNT:	0	0
* 5553	PATR: *16	ID:	PATREF:	498178	BKCNT:	0	0
* 5554	PATR: *17	ID:	PATREF:	489986	BKCNT:	0	0
* 5555	PATR: *18	ID:	PATREF:	481794	BKCNT:	0	0
* 5556	PATR: *19	ID:	PATREF:	473601	BKCNT:	0	0
* 5557	PATR: *02	ID:	PATREF:	320771	BKCNT:	0	0
* 5558	PATR: *20	ID:	PATREF:	465409	BKCNT:	0	0
* 5559	PATR: *21	ID:	PATREF:	457221	BKCNT:	0	0
* 5560	PATR: *22	ID:	PATREF:	449026	BKCNT:	0	0
* 5561	PATR: *23	ID:	PATREF:	440834	BKCNT:	0	0

CHAIN HOPPER

BEST COPY AVAILABLE

I.D.	BORROWER'S NAME	STATUS	CALL NO.		DATE DUE	NOTICE
15346:[illegible]		1 UNGR	RC465 •L32 1970		15 FEB 73	2400 2
15346:600		1 UNGR	RC480 •S2		15 FEB 73	2400 2
15346:600		1 UNGR	RC480 •S61		15 FEB 73	2400 2
236863910		1 UNGR	PN6112 •C41 1949		08 FEB 73	2400 3
15[illegible]306		1 UNGR	Y823 •B88S 1960	JUV COLL	26 FEB 73	2400 1
29444[illegible]236		1 UNGR	PPB 730111007		15 FEB 73	2400 2
145443230		1 UNGR	E185•625 •G69		20 FEB 73	2400 1
219460933		1 UNGR	JK2391 •C5U5		21 FEB 73	2400 1
144422088		1 UNGR	QP601 •D62 1964		23 FEB 73	2400 1
20[illegible]364185		5 •STU	QK731 •A91 1959		07 FEB 73	2400 3
20[illegible]364185		5 •STU	QK731 •B63		07 FEB 73	2400 3
20[illegible]364185		5 •STU	QK731 •N23 1967		07 FEB 73	2400 3
29553[illegible]916		1 UNGR	E332 •K63 1964		20 FEB 73	2400 1
08[illegible]25554		1 UNGR	PG1418 •D47S713		18 FEB 73	2400 2
212667006		1 UNGR	PPB 721030008		13 FEB 73	2400 2
008264956		5 •STU	LB1050 •P15		16 FEB 73	2400 2
008264956		5 •STU	LB1525 •H1		16 FEB 73	2400 2
008264956		5 •STU	LB1573 •D57		16 FEB 73	2400 2
365446786		5 •STU	PT273 •A43		06 FEB 73	2400 3

WEEKLY LIST OF OVERDUES

BEST COPY AVAILABLE

BEST COPY AVAILABLE

BERTRAND LIBRARY
BUCKNELL UNIVERSITY
LEWISBURG, PA. 17837
25 FEB 72

SERVICE CHARGE $1.00 AND
COST OF REPLACEMENT FOR
OVERDUE MATERIALS.

KOON RICHARD PHILIP
C0291

DA5R7 .C2B 1969B
CALDER, A
PEOPLE'S WAR, BR

DUE: 21 JAN 72 1440

*** FINAL NOTICE ***

OVERDUE NOTICE

PATRON CATEGORY	PATRONS IN CATEGORY	PATRONS WITH BOOKS	TOTAL BOOKS	OVERDUE BOOKS	TOTAL CHARGES
UNGR	2959	677	2093	261	173.75
GRAD	209	65	236	22	15.00
FAC	564	216	1721	0	.00
CLER	567	31	86	8	6.00
*STU	305	54	239	22	8.00
*FAC	27	5	12	1	.25
VIP	1	0	0	0	.00
MISC	750	204	764	48	26.50
DEPT	200	33	129	0	.00
TOTL	5602	1285	5280	362	229.50

WEEKLY ANALYSIS

BEST COPY AVAILABLE

23:36 FEB 26,'73

DISTRIBUTION OF VOLUMES BY CALL NUMBER

CALL NO. FST. LET.	OCCURRENCES
A	5
B	596
C	30
D	271
E	158
F	78
G	86
H	538
I	0
J	87
K	15
L	212
M	122
N	254
O	0
P	1346
Q	750
R	144
S	42
T	235
U	34
V	3
W	0
X	0
Y	40
Z	15
NBS	62
PPB	99
RSH	31

BEST COPY AVAILABLE

WEEKLY ANALYSIS OF BOOKS IN CIRCULATION

TJ145 .D33213	V2	DAVIDSON	HANDBOOK	** DUE: 23 JAN 73	2400	** HOLDS: 0	** PATRN: 3
TJ153 .B11		BABBAGE,	ON THE E	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TJ1560 .T6		TOWNSEND	VENDING	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TJ216 .K87 1967		KUO, T	AUTOMATI	** DUE: 18 DEC 72	2400	** HOLDS: 0	** PATRN: 1
TJ217 .G7		GIBSON,	NONLINEA	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TJ230 .T75		TOZER, E	MACHINE	** DUE: 29 NOV 72	2400	** HOLDS: 0	** PATRN: 1
TJ265 .V28		VANWYLEN	FUNDAMEN	** DUE: 28 FEB 73	2400	** HOLDS: 0	** PATRN: 1
TJ755 .S88 1939				** DUE: 29 DEC 72	2400	** HOLDS: 0	** PATRN: 1
TK140 .E3J4	V1	JEHL, F	MENLO PA	** DUE: 25 JAN 73	2400	** HOLDS: 0	** PATRN: 1
TK140 .E3J4	V2	JEHL, F	MENLO PA	** DUE: 25 JAN 73	2400	** HOLDS: 0	** PATRN: 1
TK145 .E68		ERICKSON	ELECTRIC	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK153 .L45		LEY, B J	COMPUTER	** DUE: 20 FEB 73	2400	** HOLDS: 0	** PATRN: 3
TK3001 .S98	1ST 1955	MIDWEST	PROCEEDI	** DUE: 09 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK3001 .S98	11TH 1968	MIDWEST	PROCEEDI	** DUE: 09 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK3001 .S98	12TH 1969	MIDWEST	PROCEEDI	** DUE: 09 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK3001 .S98	14TH 1970	MIDWEST	PROCEEDI	** DUE: 09 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK4351 .H6		HOWELL,	HISTORY	** DUE: 25 JAN 73	2400	** HOLDS: 0	** PATRN: 1
TK454.2 .D4		DESOER,	BASIC CI	** DUE: 20 FEB 73	2400	** HOLDS: 0	** PATRN: 3
TK5101 .S58		SNYDER,	STATE VA	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK5102.5 .M2924				** DUE: 24 JAN 73	2400	** HOLDS: 0	** PATRN: 3
TK5102.5 .M56		MIX, D F	RANDOM S	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK5982 .B45		BELINCOU	ULTRASON	** DUE: 23 DEC 72	2400	** HOLDS: 0	** PATRN: 1
TK6500 .P85 1966		POTTER,	VISIBLE	** DUE: 23 FEB 73	2400	** HOLDS: 0	** PATRN: 1
TK6561 .S28		SAFFORD,	GUIDE TO	** DUE: 10 JAN 73	2400	** HOLDS: 0	** PATRN: 8
TK6630 .K5 1962		KIVER, M	TELEVISI	** DUE: 06 FEB 73	2400	** HOLDS: 0	** PATRN: 4
TK705 .L85				** DUE: 29 NOV 72	2400	** HOLDS: 0	** PATRN: 2
TK756 .H48				** DUE: 29 NOV 72	2400	** HOLDS: 0	** PATRN: 2
TK7801 .J55 1966	OVER	JOINT I	APPLICAT	** DUE: 20 FEB 73	2400	** HOLDS: 0	** PATRN: 3
TK7803 .M41	V24	MASSACHU	RADIATIO	** DUE: 31 JAN 73	2400	** HOLDS: 0	** PATRN: 3
TK7815 .B74 1971		BROPHY,	BASIC EL	** DUE: 17 FEB 73	2400	** HOLDS: 0	** PATRN: 1
TK7815 .B87		BROPHY,	BASIC EL	** DUE: 06 FEB 73	2400	** HOLDS: 0	** PATRN: 4
TK7815 .M25	C2	MALMSTAD	ELECTRON	** DUE: 16 JAN 73	1556	** HOLDS: 0	** PATRN: 9
TK7815 .R97 1959		RYDER, J	ELECTRON	** DUE: 16 JAN 73	1557	** HOLDS: 0	** PATRN: 9
TK7835 .B33				** DUE: 09 DEC 72	2400	** HOLDS: 0	** PATRN: 8
TK7867 .C55		CLARKE,	COMMUNIC	** DUE: 17 FEB 73	2400	** HOLDS: 0	** PATRN: 1
TK7867 .J43		JENSEN,	I B M E	** DUE: 20 FEB 73	2400	** HOLDS: 0	** PATRN: 3
TK7867 .R3		RAMEY, R	MATRICES	** DUE: 20 FEB 73	2400	** HOLDS: 0	** PATRN: 3
TK7867.5 .C6 1968AA		CONFEREN	CONFEREN	** DUE: 20 FEB 73	2400	** HOLDS: 0	** PATRN: 3
TK7868 .D5S5		SIFFERLE	DIGITAL	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK7868 .S9127		MANDL, M	ELECTRON	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK7868 .S9U5		UNGER, S	ASYNCHRO	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK7871.6 .M52	V1			** DUE: 05 DEC 72	2400	** HOLDS: 0	** PATRN: 8
TK7871.85 .L44		LENERT,	SEMICOND	** DUE: 17 FEB 73	2400	** HOLDS: 0	** PATRN: 1
TK7871.9 .C69		COWLES,	TRANSIST	** DUE: 17 FEB 73	2400	** HOLDS: 0	** PATRN: 1
TK7871.9 .D39		-	DESIGNIN	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK7872 .C7M3		MALMSTAD	DIGITAL	** DUE: 16 JAN 73	1557	** HOLDS: 0	** PATRN: 9
TK7872 .F5G6		GOLD, B	DIGITAL	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK7872 .F5H84		HUMPHERY	ANALYSIS	** DUE: 17 FEB 73	2400	** HOLDS: 0	** PATRN: 1
TK7872 .L3L2 V3				** DUE: 27 OCT 72	2400	** HOLDS: 0	** PATRN: 1
TK7872 .M35H9		MELLER,	UNDERSTA	** DUE: 08 FEB 73	2400	** HOLDS: 0	** PATRN: 1
TK7872 .T73W2		WALLMARK	FIELD EF	** DUE: 20 FEB 73	2400	** HOLDS: 0	** PATRN: 3
TK7874 .C35		CAMENZIN	CIRCUIT	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9
TK7876 .L5 1970		LIVINGST	PHYSICS	** DUE: 13 FEB 73	2400	** HOLDS: 0	** PATRN: 9

BEST COPY AVAILABLE

COPY SATHOLD TO LP

	7211140I3			** DUE: 23 JAN 73 2400	** HOLDS: 1	** PATRN: 3
	7212040O7			** DUE: 23 JAN 73 2400	** HOLDS: 1	** PATRN: 3
	7212040O9			** DUE: 23 JAN 73 2400	** HOLDS: 1	** PATRN: 3
BC72 .I55 1964		IANELDEN	EARLY GR	** DUE: 10 DEC 72 2400	** HOLDS: 1	** PATRN: 3
BF1576 .H26				** DUE: 07 FEB 73 2400	** HOLDS: 1	** PATRN: 8
BF458 .P3				** DUE: 09 DEC 72 2400	** HOLDS: 1	** PATRN: 3
B2778 .E554 1964		KANT, I	IMMANUEL	** DUE: 08 NOV 72 2400	** HOLDS: 1	** PATRN: 3
B829.5 .L36		LAWRENCE	READINGS	** DUE: 21 OCT 72 2400	** HOLDS: 1	** PATRN: 3
DF220 .D44 1972B				** DUE: 13 FEB 73 2400	** HOLDS: 1	** PATRN: 3
E807.1 .R572		LASH, J	ELEANOR	** DUE: 12 DEC 72 2400	** HOLDS: 1	** PATRN: 3
E93 .U3				** DUE: 21 DEC 72 2400	** HOLDS: 1	** PATRN: 9
F157 .S9H4	V2	-	HISTORY	** DUE: 02 NOV 72 2400	** HOLDS: 1	** PATRN: 9
HD20.5 .F6X				** DUE: 12 FEB 73 2400	** HOLDS: 1	** PATRN: 9
HF5549 .Y56 1970		BODER, D	PERSONNE	** DUE: 28 DEC 72 2400	** HOLDS: 1	** PATRN: 1
HM131 .K353		KATZ, F	AUTONOMY	** DUE: 06 FEB 73 2400	** HOLDS: 1	** PATRN: 5
HM291 .B82		BUCKNER,	DEVIANCE	** DUE: 26 FEB 73 2400	** HOLDS: 1	** PATRN: 8
HN525 .R12				** DUE: 21 DEC 72 2400	** HOLDS: 1	** PATRN: 9
HQ57.5 .I3T5				** DUE: 13 FEB 73 2400	** HOLDS: 2	** PATRN: 3
HT153 .F66				** DUE: 29 NOV 72 2400	** HOLDS: 1	** PATRN: 3
HV6791 .C7				** DUE: 21 DEC 72 2400	** HOLDS: 1	** PATRN: 9
HV9081 .K4		KELLER,	HALFWAY	** DUE: 18 NOV 72 2400	** HOLDS: 1	** PATRN: 3
HV9104 .A796		AMOS, W	DELINQUE	** DUE: 19 JAN 73 2400	** HOLDS: 1	** PATRN: 3
HV9104 .P77				** DUE: 21 NOV 72 2400	** HOLDS: 1	** PATRN: 3
HV9104 .S89		STREET,	ORGANIZA	** DUE: 24 NOV 72 2400	** HOLDS: 1	** PATRN: 3
JK2408 .P43		PEIRCE,	MEGASTAT	** DUE: 05 FEB 73 2400	** HOLDS: 1	** PATRN: 1
NBS 721002001		SOLZHENI	AUGUST 1	** DUE: 30 JAN 73 2400	** HOLDS: 1	** PATRN: 3
NBS 721130003		CHESLER,	WOMEN AN	** DUE: 14 DEC 72 2400	** HOLDS: 2	** PATRN: 3
PN1998 .A3R395				** DUE: 17 NOV 72 2400	** HOLDS: 1	** PATRN: 3
PQ2178 .O9				** DUE: 11 DEC 72 2400	** HOLDS: 1	** PATRN: 3
PR6045 .H205				** DUE: 29 JAN 73 2400	** HOLDS: 1	** PATRN: 1
PS3513 .I74H6		GINSBERG	HOWL	** DUE: 22 FEB 73 2400	** HOLDS: 1	** PATRN: 1
PS3566 .O85S87		ROTH, P	BREAST	** DUE: 06 FEB 73 2400	** HOLDS: 1	** PATRN: 1
PS1 .O4				** DUE: 12 FEB 73 2400	** HOLDS: 1	** PATRN: 3
QA297 .H13				** DUE: 08 JAN 73 2400	** HOLDS: 1	** PATRN: 9
Q175 .P62				** DUE: 20 OCT 72 2400	** HOLDS: 1	** PATRN: 3
RC480.5 .G54		GLASSER,	REALITY	** DUE: 13 DEC 72 2400	** HOLDS: 2	** PATRN: 3
TR220 .T55		TIME LIF	PRINT	** DUE: 02 NOV 72 2400	** HOLDS: 1	** PATRN: 1
Z696 .M25		MALTBY,	CLASSIFI	** DUE: 01 DEC 72 2400	** HOLDS: 2	** PATRN: 3

WEEKLY LIST OF BOOKS WITH HOLDS

BEST COPY AVAILABLE

04 APR 73

SMITH JOHN
R D 1 LEWISBURG, PA 17837

ACCORDING TO OUR RECORDS THE BOOKS LISTED BELOW ARE CHARGED TO YOU. WILL YOU PLEASE CHECK THE LIST, RETURN THE BOOKS YOU NO LONGER NEED, AND RENEW THE ONES YOU ARE STILL USING?

CIRCULATION DEARTMENT
BERTRAND LIBRARY

HD38 .C9	C2			** DUE: 16 APR 73
HD31 .S27		SAYLES, L R	MANAGERIAL BEHAVIOR	** DUE: 16 APR 73
HD31 .L72		LIKERT, R	NEW PATTERNS OF MANAGEME	** DUE: 16 APR 73
HD31 .W63		WOODWARD, J M A	INDUSTRIAL ORGANIZATION	** DUE: 16 APR 73
HD31 .W66		WORTMAN, M S	EMERGING CONCEPTS IN MAN	** DUE: 16 APR 73
HF5549 .P287		PATTEN, T H	FOREMAN	** DUE: 16 APR 73
HF5548.8 .K4		KELLY, J	ORGANIZATIONAL BEHAVIOUR	** DUE: 16 APR 73
HF5548.8 .S47		SHEPARD, J M	AUTOMATION AND ALIENATIO	** DUE: 16 APR 73
HF5548.8 .A65		APPLEWHITE, P B	ORGANIZATIONAL BEHAVIOR	** DUE: 16 APR 73
HM131 .T47		THOMPSON, J D	APPROACHES TO ORGANIZATI	** DUE: 16 APR 73
HD31 .R89 1966	C3	RUBENSTEIN, A H	SOME THEORIES OF ORGANIZ	** DUE: 16 APR 73

BEST COPY AVAILABLE

FACULTY CHARGES

COSTS

The costs of the shelf list conversion and the development of BLOCS are shown on pages following. The yearly operating costs for Sigma-7 processing and hardware/software maintenance are estimated to be approximately $8,000. How much of this cost can be offset by reductions elsewhere is problematical. The discontinuance of typed book cards results in a savings of $100.00/year in supplies, but this gain is cancelled by the $200.00 annual cost of 80-column cards and paper for the strip printer. The time saved by not typing book cards is used to create machine-readable records for new books for the production of the monthly book list and the 80-column book cards.

For the fall semester of 1972 when the automated system was first put into operation, the number of student hours was increased in order to take care of the operations of a dual system - manual and automated - for the first few months. Once the temporary increase is no longer needed, it is still doubtful if the decrease in student help will be significant. Since the circulation operation is a relatively small one often carried on by a single attendant even under the old manual system, it will not be possible to realize large savings by the reduction of personnel. The library staff felt from the start that the greatest gains would not come in monetary savings but from better management techniques based on accurate and rapidly received data.

Since it is difficult to translate costs from one computer environment to another, samples of typical run times and CPU times are given for various programs.

BEST COPY AVAILABLE

Shelf-List Conversion
Developmental Expenditures

I. Hardware		
Rental of 2 terminals (20 mo.)		$1,800
Special tab cards (80 col.)		600
	Subtotal:	$2,400
II. Sigma-7 Services		
Total services used (June 1970 - January 1972)		$37,490
Total services used (February 1972 - June 1972)		4,200
	Subtotal:	$41,690
III. Personnel Required		
Chief-technical services (¼ yr.)		$3,300
Catalog librarian (1-1/3 man-yrs.)		10,050
Graduate assistant (½ time for 1 year)		2,000
Undergraduate assistants (2½ man-yrs.)		6,340
Clerical assistants (½ man-yrs.)		2,330
	Subtotal:	$24,020
IV. Overhead (@ 53% of Salaries)		$12,730
	Total:	$80,840

Income

NSF COSIP Grant		$7,500
Bucknell Matching Funds		3,750
Freas-Rooke Computer Center		
Sigma-7 Services		41,690
Operational Budget		6,470
Ellen Clarke Bertrand Library		8,700
Bucknell University (Overhead)		12,730
	Total:	$80,840

On-Line Circulation System (BLOCS)
Developmental Expenditures

June 1970 through January 1972

I. Hardware		
A. Purchased		
Computer System		
PDP-8/L (4K)		$2,184
Add'l 4K memory		2,500
Spare modules		1,706
Suppl. software		13
	Subtotal:	$13,403
SYKES Compu/Corder 100		
Tape handler		$2,950
Pre-formatted cassettes		195
	Subtotal:	$3,145
Four (4) 1200 baud data sets		$1,640
Transaction Station		
ASP 80 col. card reader		$1,883
Thumb-wheel switches (2)		56
Panasonic 10 col. readers (2)		347
Cabling (twisted pairs)		79
Panel lights		24
Housing		25
Strip printer		451
Electronics		599
Assembly equipment		156
	Subtotal:	$3,620
Total Purchased Hardware:		$21,800
B. Leased		
Three (3) 103A data sets		$300
CRT entry terminal		300
	Subtotal:	$600
Total Leased Hardware:		$600
II. Sigma-7 Services		
CPU, terminal time; magnetic tapes; disc storage; printed output		$6,710

Figure 18: Development Expenditures

III. Personnel Required		
3 mo. summer student assistance		$1,500
Graduate assistant (¼ time; 1 yr.)		2,000
Systems Analyst (7 mo.)		4,970
Chief-technical services (1/8 yr.)		1,800
Undergraduate assistants (800 hr.)		1,600
Hardware design supvsr. (1/6 yrs.)		2,700
Hardware graduate assistant (2 mo.)		580
	Subtotal:	$15,150
IV. Overhead (@ 53% of Salaries)		$8,029

February 1972 through June 1972

I. Hardware		
A. Purchase		
Auxiliary Transaction Station		
ASP 80 col. card reader		$1,883
Panel lights		24
Panel housing		25
Electronics		600
Strip printer		451
	Subtotal:	$2,983
B. Leased		
Two (2) 103A data sets		$110
CRT entry terminal		500
	Subtotal:	$610
II. Sigma-7 Services		
Total Sigma-7 cost for finalized BLOCS development & testing		
	Subtotal:	$5,800
III. Personnel Required		
Systems Analyst (4 mo.)		$2,830
Chief-technical services (¼ mo.)		500
Undergraduate assistants (320 hr.)		600
Hardware design supvsr. (¼ mo.)		625
	Subtotal:	$4,555
IV. Overhead (@ 53% of Salaries)		$2,414

Figure 18: Development Expenditures (cont.)

BEST COPY AVAILABLE

Circulation Department
Operating Expenditures

Before BLOCS (1-year)		
Personnel		
Permanent Staff		$30,468
Student Assistants		13,075
Door Checkers		6,129
	Subtotal:	$49,672
Supplies		$428
Overhead (@ 53% of Salaries)		$26,326
	Total:	$76,426
After BLOCS (Estimated - 1 year)		
Hardware & Computer Services		
Sigma-7 computer		$850
Dedicated port		360
Disc storage		4,800
Multi-media processing		420
Hardware maintenance		500
CRT		1,000
	Subtotal:	$7,930
Personnel		
Software maintenance		$1,200
Software enhancements		1,200
Permanent staff		24,148
Student assistants		11,155
Door checkers		6,129
	Subtotal:	$43,832
Overhead (@ 53% of Salaries)		$23,230
Supplies		$334
	Total:	$75,326

Figure 20: Operating Expenditures

SUMMARY BUDGET
BLOCS DEVELOPMENT

EXPENDITURES

ITEM	1970-1971	1971-1972	TOTAL
Hardware (Purchase)	$21,800	$2,983	$24,783
Hardware (Rental)	600	610	1,210
Sigma-7 Services	6,710	5,800	12,510
Personnel	15,150	4,555	19,705
Overhead	8,029	2,414	10,443
TOTAL:	$52,289	$16,362	$68,651

INCOME

Freas-Rooke Computer Center			
Sigma-7 Services	$6,710	$5,800	$12,510
Operating Budget	13,825	3,750	17,575
Ellen Clarke Bertrand Library	23,725	4,398	28,123
Bucknell Univ. (Overhead)	8,029	2,414	10,443
TOTAL:	$52,289	$16,362	$68,651

Figure 19: Summary Development Budget

BEST COPY AVAILABLE

UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS
UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS

04:37 MAR 05,'73 ID=0060

ELAPSED JOB TIME		1:56
PARTITION NUMBER		3
TOTAL CPU TIME		51.0965
PROCESSOR EXECUTION TIME		.0132
PROCESSOR SERVICE TIME		.0087
USER EXECUTION TIME		40.4750
USER SERVICE TIME		10.3997
CARDS:	CARDS READ	5
PAGES:	PROCESSOR PAGES	4
	USER PAGES	135
CORE:	PEAK CORE(PAGES)	23
	PAGE-MINUTES	2094
I/O:	OPERATIONS	52086
	CALS	160116
FILE SPACE		
AVLBL RAD PERMANENT		1500
AVLBL DISK PERMANENT		1500

CHAIN HOPPER

UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS
UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS

01:02 MAR 15,'73 ID=089D

ELAPSED JOB TIME		1:22
PARTITION NUMBER		7
TOTAL CPU TIME		14.6579
PROCESSOR EXECUTION TIME		.3048
PROCESSOR SERVICE TIME		.7639
USER EXECUTION TIME		10.3684
USER SERVICE TIME		3.2209
CARDS:	CARDS READ	26
PAGES:	PROCESSOR PAGES	316
CORE:	PEAK CORE(PAGES)	30
	PAGE-MINUTES	517.3645
I/O:	OPERATIONS	28439
	CALS	168159
FILE SPACE		
AVLBL RAD PERMANENT		32767
PEAK DISK TEMPORARY		1773
AVLBL DISK PERMANENT		32767

BOOKS IN CIRCULATION LISTING

BEST COPY AVAILABLE

UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS
UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS

00:13 MAR 14,'73 ID=05C3

ELAPSED JOB TIME		:14
PARTITION NUMBER		15
TOTAL CPU TIME		2.4695
PROCESSOR EXECUTION TIME		.3393
PROCESSOR SERVICE TIME		.1368
USER EXECUTION TIME		1.7591
USER SERVICE TIME		.2343
CARDS:	CARDS READ	12
PAGES:	PROCESSOR PAGES	30
	USER PAGES	20
CORE:	PEAK CORE(PAGES)	8
	PAGE-MINUTES	56.0645
I/O:	OPERATIONS	792
	CALS	16298
FILE SPACE		
AVLBL RAD PERMANENT		32767
PEAK DISK TEMPORARY		9
NET DISK PERMANENT		7
AVLBL DISK PERMANENT		32760

DAILY JOURNAL WITH STATISTICAL SUMMARY

UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS
UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS UTS

00:27 MAR 13,'73 ID=0368

ELAPSED JOB TIME		:35
PARTITION NUMBER		2
TOTAL CPU TIME		5.7860
PROCESSOR EXECUTION TIME		.3825
PROCESSOR SERVICE TIME		.0590
USER EXECUTION TIME		3.9817
USER SERVICE TIME		1.3628
CARDS:	CARDS READ	27
PAGES:	PROCESSOR PAGES	5
	USER PAGES	248
CORE:	PEAK CORE(PAGES)	40
	PAGE-MINUTES	245.1253
I/O:	OPERATIONS	13892
	CALS	47321
FILE SPACE		
AVLBL RAD PERMANENT		999
PEAK DISK TEMPORARY		19
AVLBL DISK PERMANENT		999

WEEKLY OVERDUE RUN

NOTICES AND LISTING

BEST COPY AVAILABLE

EVALUATION

The chart below gives in summary form the items to be discussed in later paragraphs.

BLOCS

ADVANTAGES	DISADVANTAGES
More records and statistics for better management	High cost, especially of development
Immediate availability of all circulation transactions	Queues in charging
More rapid production of overdue notices, listings of charges, etc.	Record loss
Rapid discharging	Inconvenience of computer down-time
Verification of borrower	Loss of autonomy

Perhaps it is still too soon to evaluate a system which has been in operation for less than two semesters. The vast improvements made during the second semester are encouraging. What, then, are the gains and losses at this time?

One of the chief losses has been that of a book's past circulation record. The automated system gives the current status of a book only. The abandonment of book cards and date due slips in favor of a computerized punched card system has led to this unhappy result. Therefore we have reinstated the use of the stamped date due slip. While this slip gives some indication of use, and so helps in the weeding process, it does not give as complete a picture as the former book cards

offered. With the book cards it was possible to establish whether use had been primarily by students, faculty, off-campus borrowers or Reserves. Some time in the future the machine-readable record of a volume may be increased to include the information now lacking.

Errors in keyed-in call numbers are too frequent. An effort is being made to keep keying-in to a minimum, but it still occurs in the instance of a forgotten or mispunched I.D. badge, malfunction of the card reader, or during a period of computer down-time. While the PDP-8/L is used as back-up for any significant down-time, there is a tendency on the part of circulation attendants to write down transactions for short down-times for later keying-in rather than resorting to the off-line use of the PDP-8/L in order to avoid the chore of reading the cassette from the PDP-8/L system into the Sigma after the Library is closed. Off-line data can be transmitted to the Sigma only when BLOCS is not in operation.

Keyed-in errors may become a thing of the past when the entire shelf list is carried on-line. The possibility will then exist for checking the validity of a call number at the time of each transaction. There are plans for the purchase of a disc dedicated to library use. When such a disc is put into operation many improvements in BLOCS will be possible.

Even with the back-up of the PDP-8/L the loss of occasional records has occurred. While the number may not be large statistically, it must be remembered that a shelf list of 300,000 titles does not represent 300,000 identical items. When a record is lost, it does not mean a 1/300,000th loss, but

a 100% loss of an item unique to the library. A lost record of a charge means that the book is lost until such time as the borrower chooses to return the book. A careless borrower may possibly never return the book. Searches may accumulate for the book until it becomes an inventory missing item and possibly have to be replaced. Other lost records, while inconvenient, do not represent as serious a loss as missing charge records. In any case, any lost book represents a serious deprivation to a borrower requesting its use.

The charging process has prompted the most complaints from borrowers. In the former manual charging system the borrower signed two book cards for each book. By the time the borrower had finished signing his name the circulation attendant had also finished his part of the process. In the automation system the borrower plays a passive role and must wait for the attendant to perform all the necessary routines. For a single borrower the total time elapsed for a charge is probably less than the old way but the charging process seems longer to the borrower. This judgment may be mistaken, but the borrower who compares his period of enforced idleness in the new system with his participatory role in the manual system may come to the spurious conclusion that the machine process is more time-consuming. In the case of multiple borrowers there is always some queuing when books are presented for charging in the automated system. The manual system permitted all borrowers to be signing book cards simultaneously. Only date stamping had to be done by the attendant. It might be mentioned that the present charging of Reserve books, while not

automated, uses a mechanical charging system which presents many of the same problems of queuing as the automated system but without as many complaints from borrowers. Perhaps familiarity breeds patience. A second transaction station will relieve the situation somewhat. However, the fact remains that borrowers standing idly by watching a circulation attendant perform even a relatively rapid procedure are inclined to become restless. A self-serve station and CRT may be the answer. Degradation, graceful or otherwise, in the system increases charging times. While a minute or two-minute delay in normal clerical office routines may not be crucial, it becomes intolerable to a waiting borrower. Such situations do not occur with frequency, but when they do, the circulation attendant must not only resort to a manual charge (with the necessity of a later key-in) but also at the same time employ utmost tact in mollifying a disgruntled borrower.

Also in the loss column must be noted the fact that even minor malfunctions of the system seem to have to be corrected with the concurrence of more than one professional staff member while most errors in the manual system could, in most cases, be corrected by a single clerk. It is to be hoped that this phenomenon will fade away as familiarity with the system increases and more fail-safe routines are added.

No evaluation would be complete without some discussion of cost. The question of whether the amounts spent for shelf-list conversion ($80,240) and for the development of BLOCS ($137,302) could have been used to greater advantage to make improvements to the manual circulation system, is, of course, open to debate. It must be pointed out, however, that some of the funds spent were

granted for the development of an automated system and would not have been available for the improvement of a manual system. In addition, some of the time spent by both the Library and Computer Center personnel in the development of BLOCS would, or should, have been spent in the field of library automation in any case as part of a continuing education program. The presence of an automated system in the Library has added a dimension to the growth of all the librarians on the staff.

In considering the other side of the coin, it must be said that the reports generated by the automated system do provide management information more quickly and in a format more easily assimilable than those provided by the manual system. The capability of producing overdue notices rapidly has given the Circulation Department closer control of books in circulation. The automatic recording of holds, recalls, and returned overdue books is both a more accurate and more rapid system than the manual operation. The daily and weekly statistics present patterns of use more graphically than the manual system. Not only is the number of books in circulation known but their distribution by classification number, by category of borrower and even by individual borrower. It is now possible to ascertain how many books are charged to a given borrower at any one time, to find out if books are circulating evenly to a large number of borrowers, or whether a few borrowers account for most of the circulation. It is possible to list any borrower's charges with a query command. Under the manual system only the faculty charges were listed by

borrower. The fact that faculty charges (or student, if desired) for review can be computer produced will reduce the clerical work load at the critical year end periods. Under the manual system the necessary typing of such lists was sometimes impossible because of staffing difficulties. The most effective time for such lists is the end of the academic year before faculty members leave the campus for the summer. As a heavy return of books usually occurs during this same period, the typing of faculty charges was difficult indeed. However, the automated system permits the issuance of faculty charge listings at an optimum time.

The daily journal which records all the previous day's transactions is a very useful supervisory tool. Evening and week-end circulation service is maintained by student assistants with varying ranges of experience. A glance at the journal every morning allows the supervisor to pinpoint any difficulties the student assistants may have experienced.

One of the boons of an on-line system is the instant availability of records - instant filing, as it were. Every transaction is immediately recorded and available in response to a query command. The immediate knowledge of the status of a requested volume has reduced the number of searches for books in frequent circulation. The record of a book recently charged out is immediately available as well as the record for a recently discharged book. Guessing the location of much-used volumes is no longer necessary.

Any procedure reducing book loss must be considered a definite benefit. The automatic checking of the Patron File for valid

I.D. numbers eliminates book losses to unidentified borrowers. With the manual system there were occasional instances of illegible signatures or false names and addresses on book cards. Happily, this situation no longer occurs.

One of the biggest improvements in the new system has been the rapid discharge of books. Under the manual system it was necessary to search two files in order to discharge a book. The result was that, in busy times, as many as a thousand books in some form of discharge or half-discharge cluttered the work area, impeded the work of the attendants and necessitated many futile searches for requested volumes. The rapid discharge of books produces instantly available records of the discharge and permits the books to be removed from the work area almost immediately. The results of the automated system in this very important routine have been spectacular.

A more subtle problem arising from a system sharing a general-use computer is a certain loss of autonomy in the establishment of priorities. At any given time the Library always has a number of programs for improving service waiting for possible implementation. It is no longer possible for the Library to implement the programs in the order it desires. With shared resources the Library and the Computer Center must work out priorities together. Neither can establish priorities, and in some instances, standards of service, without consulting the other. Such a situation does not present insurmountable difficulties, but it does magnify the task of administrative officers.